

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)
	10/686,716	BRUNET ET AL.
	Examiner	Art Unit
	Jennifer A. Leung	1764
The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply		
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).		
Status		
1) Responsive to communication(s) filed on		
	s action is non-final.	
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is		
closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.		
Disposition of Claims		
4) ☐ Claim(s) 1-7 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) 1-7 is/are rejected. 7) ☐ Claim(s) is/are objected to. 8) ☐ Claim(s) are subject to restriction and/or election requirement.		
Application Papers		
 9) ☐ The specification is objected to by the Examiner. 10) ☐ The drawing(s) filed on 17 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d). 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152. 		
Priority under 35 U.S.C. § 119		
 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No. 09/725,510. 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 		
Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 10-17-2003.	4) Interview Summary Paper No(s)/Mail Da 5) Notice of Informal P 6) Other:	

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s):

In claims 4 and 7, the "at least one zone for separating catalyst, liquid product and gaseous hydrogen-containing effluent located after said treatment zones," (lines 10-11), and the "at least one line for recycling at least a portion of the gaseous hydrogen containing effluent from said separation zone to said zone carrying out the dehydrogenation reaction," (lines 18-20).

In claim 5, the "at least one line for recycling at least a portion of the gaseous hydrogencontaining effluent obtained from the separation zone to said reduction zone," (lines 1-3).

No new matter should be entered.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Specification

- 4. The application priority of the specification should be updated to read,
 - --This application is a divisional of U.S. Patent Application Serial No. 09/725,510, filed November 30, 2000, now U.S. Patent No. 6,660,895.--
- 5. The abstract of the disclosure is objected to because the abstract contains legal phraseology and is more than one paragraph in length. Correction is required. See MPEP § 608.01(b). Applicant is reminded of the proper language and format for an abstract:

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The disclosure is objected to because of the following informalities:

On page 1, before line 1, please insert,

--BACKGROUND OF THE INVENTION--.

On page 5, before line 16, please insert,

--SUMMARY OF THE INVENTION--.

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On page 7, before line 9, please insert,

--BRIEF DESCRIPTION OF THE DRAWINGS

- FIG. 1 is [insert brief description here] of the prior art.
- FIG. 2 is [insert brief description here] of the invention.
- FIG. 3 is [insert brief description here] of the invention.

DETAILED DESCRIPTION OF THE INVENTION--.

7. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Appropriate correction is required.

Claim Objections

- 8. Claims 1 and 3-7 are objected to because of the following informalities:
 - In claim 1, "said zone" (lines 4, 6 and 7) should be changed to --said at least one zone--.

In claim 3, "the reduction zone" (line 1) should be changed to --said at least one catalyst reduction zone--. Also, "the treatment zone" (line 4) should be changed to --said at least one zone for treating--.

In claim 4, "the" located before "treating" (line 3) should be deleted. Also, "said subsequent zone" (line 8) should be changed to --said at least one subsequent treatment zone--. Also, "said zone carrying out napthene dehydrogenation" (lines 13-14) should be changed to --said at least one zone for treating--. Also, "said reduction zone" (line 15) should be changed to --said at least one zone for reducing--. Also, "said dehydrogenation zone" (line 15) should be changed to --said at least one zone for treating--. Also, "said separation zone" (line 19) should be changed to --said at least one zone for separating--. Also, "said zone carrying out the

dehydrogenation reaction" (lines 19-20) should be changed to --said at least one zone for treating--. Also, "the subsequent zone" (line 22) should be changed to --said at least one subsequent treatment zone--. Also, "the line for withdrawing a gaseous stream" (line 21) should be changed to --said at least one line for extracting a gas stream--. Also, "at least one line supplying feed" (line 22) should be changed to --said at least one line for supplying feed--.

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In claim 5, "the separation zone to the reduction zone" (lines 2-3) should be changed to -said at least one zone for separating to said at least one zone for reducing--.

In claim 6, "the reduction zone" (line 1) should be changed to --said at least one catalyst reduction zone--. Also, "the treatment zone" (line 4) should be changed to --said at least one zone for treating--.

In claim 7, "said subsequent zone" (line 8) should be changed to --said at least one subsequent treatment zone--. Also, "the subsequent zone" (line 22) should be change to --said at least one subsequent treatment zone--. Also, "said zone carrying out naphthene dehydrogenation" (lines 13-14) should be changed to --said at least one zone for treating--. Also, "said dehydrogenation zone" (line 15) should be changed to --said at least one zone for treating--. Also, "said reduction zone" (line 15) should be changed to --said at least one zone for reducing--. Also, "said separation zone to said zone carrying out the dehydrogenation reaction" (lines 19-20) should be changed to --said at least one zone for separating to said at least one zone for treating--. Also, "the line for withdrawing a gaseous stream" (line 21) should be changed to --said at least one line for extracting a gas stream--. Also, "at least one line supplying feed" (line 22) should be changed to --said at least one line for supplying feed--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, "the top of the reactor" (line 2), "the bottom of the reactor" (line 3), and "the lower portion of the reactor" (lines 7-8) lack proper positive antecedent basis because the "reactor" is merely set forth in the preamble. Also, "the upper portion" (line 8) lacks proper positive antecedent basis, and it is unclear as to which of the structural elements "the upper portion" is referring to. Also, "said treated cut" (line 6) lacks proper positive antecedent basis. Also, "gaseous effluent" (line 6) lacks proper positive antecedent basis, because it is unclear as to where the gaseous effluent arises from in the reactor.

Regarding claim 2, it is unclear as to which zones are being referred to by "said zones" (line 1 and 2) because "at least one zone for treating" (single or plural zones) and "at least one catalyst reduction zone" (single or plural zones) are set forth in claim 1 (lines 4 and 8).

Regarding claim 3, "the reduction step" (line 2 and lines 3-4) lacks proper positive antecedent basis. Also, it is unclear as to which zones are being referred to by "said zones" (line 3) because "at least one zone for treating" (single or plural zones) and "at least one catalyst reduction zone" (single or plural zones) are set forth in claim 1 (lines 4 and 8).

Regarding claim 4, "the first zone" (line 3) lacks proper positive antecedent basis, and it is unclear as to the relationship of "the first zone" (line 3) to the "at least one zone" (line 3). It is

also unclear as to the relationship of the "at least one subsequent treatment zone" (line 7) to the "at least one zone" (line 3). Also, it is unclear as to which zone is being referred to by "said zone" (line 4) because both "at least one zone" and "the first zone" are set forth in line 3. Also, it is unclear as to the structural relationship of the "at least one line for supplying feed to said subsequent zone" (line 8) to the "at least one gaseous stream withdrawal line" (line 6). Also, the "catalyst, liquid product and gaseous hydrogen-containing effluent" (line 10) lack proper positive antecedent basis, because it is unclear as to where these streams arise from in the apparatus. Also, it is unclear as to which treatment zones are being referred to by "said treatment zones" (line 11) because "at least one zone, the first zone, for the treating" (single or plural zones) and "at least one subsequent treatment zone" (single or plural zones) is set forth in lines 3 and 7. Also, it is unclear as to the structural relationship of the "at least one catalyst regenerating zone" (line 12) to the other elements of the apparatus. Also, "the reduction step" (line 21) lacks proper positive antecedent basis.

Regarding claim 6, "the reduction step" (line 2 and lines 3-4) lacks proper positive antecedent basis. Also, it is unclear as to which zones are being referred to by "said zones" (line 3) because "at least one zone for treating" (single or plural zones) and "at least one catalyst reduction zone" (single or plural zones) are set forth in claim 1 (lines 4 and 8).

Regarding claim 7, it is unclear as to the structural relationship of "a reactor according to claim 1" (line 23) to the other elements of the apparatus. Also, it is unclear as to the structural relationship of the "at least one catalyst regenerating zone" (line 12) to the other elements of the apparatus. Also, "the first zone" (line 3) lacks proper positive antecedent basis, and it is unclear as to the relationship of "the first zone" (line 3) to the "at least one zone" (line 3). Also, it is

unclear as to which zone is being referred to by "said zone" (line 4) because both "at least one zone" and "the first zone" are set forth in line 3. Also, it is unclear as to the relationship of the "at least one subsequent treatment zone" (line 7) to the "at least one zone for treating" (line 3). Also, it is unclear as to the structural relationship of the "at least one line for supplying feed" (line 8) to the "at least one gaseous stream withdrawal line" (line 6). Also, the "catalyst, liquid product and gaseous hydrogen-containing effluent" (line 10) lack proper positive antecedent basis, because it is unclear as to where these streams arise from in the apparatus. Also, it is unclear as to which treatment zones are being referred to by "said treatment zones" (line 11) because "at least one zone, the first zone, for the treating" (single or plural zones) and "at least one subsequent treatment zone" (single or plural zones) is set forth in lines 3 and 7. Also, it is unclear as to the structural relationship of the "at least one catalyst regenerating zone" (line 12) to the other elements of the apparatus. Also, "the reduction step" (line 21) lacks proper positive antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 10. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans (US 2,534,859).

Regarding claim 1, Evans (FIG. 1) discloses a reactor 10 for conducting general contact reactions between gasiform reactants and particle-form solid material, said reactor comprising:

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at least one line (i.e., inlet 11, suitable for introducing a catalyst to the top of the reactor) and at least one line (i.e., outlet 12, suitable for withdrawing catalyst at the bottom of the reactor); at least one zone located in the lower portion of the reactor 10 (i.e., comprising passage portion 28, located below plates 20 and 20°, and structurally suitable for conducting the instantly recited dehydrogenation reaction) and provided with at least one line (e.g., line 86, structurally suitable for introducing a cut), at least one line (e.g., line 39, structurally suitable for withdrawing a treated cut and gaseous effluent) and at least one line (e.g., line 85, structurally suitable for introducing a hydrogen-containing gas); and at least one other zone located in the upper portion of the reactor 10 (i.e., comprising passage portion 28, located above plates 20 and 20°, and structurally suitable for defining a catalyst reduction zone) and provided with at least one line (i.e., line 87, suitable for introducing hydrogen-containing gas).

Regarding claim 2, Evans discloses means (i.e., horizontal partitions 20, 20') for separating the zones.

Regarding claims 3 and 6, Evans discloses at least one line (e.g., line 40, structurally suitable for withdrawing gaseous effluent from the reduction zone) and at least one means (i.e., horizontal partitions 20, 20') for separating the zones.

Instant claims 1-3 and 6 structurally read on the apparatus of Evans.

11. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Vesely et al. (US 3,725,249).

Regarding claim 1, Vesely (FIG. 1) discloses a reactor (i.e., as defined by the vessel, unlabeled, containing elements 61, 6 and 13) comprising:

at least one line (i.e., line 60) for introducing a catalyst to the top of the reactor and at

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least one line (i.e., lines 18 and 19) for withdrawing catalyst located at the bottom of the reactor; at least one zone for treating a cut (i.e., comprising annular beds 6 and 13) located in the lower portion of the reactor and provided with at least one line for introducing the cut (i.e., via line 1), at least one line for withdrawing the treated cut and gaseous effluent (i.e., via line 15); and at least one line for introducing a hydrogen-containing gas (i.e., via line 3); and at least one catalyst reduction zone (i.e., reducing zone 61) located in the upper portion of the reactor and provided with at least one line for introducing a hydrogen-containing gas (i.e., via line 59).

Instant claim 1 structurally reads on the apparatus of Vesely et al.

12. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Deering et al. (US 2,913,399).

Regarding claim 1, Deering et al. (FIG. 1) discloses a reactor (i.e., including elements 10 and 12) comprising:

at least one line (i.e., conveyance-regenerator chamber 18, column 4, lines 14-26) for introducing a catalyst to the top of the reactor 10/12, and at least one line (i.e., via outlet 148; column 7, lines 1-25) for withdrawing catalyst located at the bottom of the reactor; at least one zone for treating a cut (i.e., a primary reforming zone 32) located in the lower portion of the reactor 10/12 and provided with at least one line for introducing the cut (i.e., via feed line 20), at least one line for withdrawing the treated cut and gaseous effluent (i.e., via effluent line 44); and at least one line for introducing a hydrogen-containing gas (i.e., via line 125; column 6, lines 65-68); and at least one catalyst reduction zone (i.e., catalyst pretreating zone 96; column 6, lines 10-47) located in the upper portion of the reactor 10/12 and provided with at least one line for introducing a hydrogen-containing gas (i.e., via line 100).

Regarding claim 2, invoking 35 U.S.C. 112, sixth paragraph, applicant defines the means

for separating the zones as "for example a plate" (page 14, lines 19-20). Deering et al. discloses a means (i.e., baffle 95 or 98) for separating the zones 32 and 96.

Regarding claims 3 and 6, Deering et al. discloses at least one line (i.e., line 90, or line 176) for withdrawing gaseous effluent from the reduction zone 96; and at least one means (i.e., baffle 95 or 98) for separating the zones 32 and 96.

Instant claims 1-3 and 6 structurally read on the apparatus of Deering et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering et al. (US 2,913,399) in view of Greenwood (US 4,615,792).

Regarding claims 4 and 7, Deering et al. (FIG. 1; column 4, line 14 to column 6, line 75) discloses an apparatus comprising:

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at least one zone, the first zone (i.e., reforming zone 32), provided with at least one line for introducing a cut (i.e., via line 20), at least one line for introducing a hydrogen-containing gas (i.e., via line 125), and at least one gaseous stream withdrawal line (i.e., via line 44);

at least one subsequent treatment zone (i.e., secondary reforming zone 36) located after said first zone 32) and comprising at least one line (i.e., via line 130) for supplying feed to said subsequent zone 36 and at least one line for withdrawing a gaseous effluent (i.e., via line 44);

at least one zone for separating catalyst (i.e., via separator 178), liquid product (i.e., via line 78 of separator 70) and gaseous hydrogen-containing effluent (i.e., via line 80 of separator 70) located after said treatment zones 32, 36;

at least one catalyst regeneration zone (i.e., regeneration chamber 18);

at least one zone for reducing regenerated catalyst (i.e., pretreating zone 96) connected to said first zone 32, said reduction zone 96 provided with at least one line for introducing hydrogen-containing gas (i.e., via line 100) and at least one line for extracting a gas stream (i.e., via line 90); and

at least one line (i.e., from compressor 88, via lines 86, 122 and 125; column 6, lines 10-16 and 57-68) for recycling a portion of the gaseous hydrogen-containing effluent from said separation zone 70 to said first zone 32.

The apparatus further comprises the reactor according to claim 1, as anticipated by Deering et al., above. (the same comments apply).

Deering et al. is silent as to the line 90 for withdrawing a gaseous stream (i.e., containing gas at a rate of about 205 M s.c.f. per day, column 6, lines 36-47) from the reduction step 96 being connected to at least one line supplying feed to the subsequent zone 36. In any event, it

would have been obvious for one of ordinary skill in the art at the time the invention was made to connect line 90 to at least one line supplying feed to the subsequent zone 36 in the apparatus of Deering et al., on the basis of suitability for the intended use, because the recycling of a hydrogen-containing gas stream for subsequent use in the process would have been conventionally known in the art, as suggested by the various lines for recycling a hydrogencontaining gas stream from the separation zone 70 to the at least one zone for treating 32, 36 in the apparatus of Deering et al. Additionally, Greenwood teaches that it is conventionally known in the art to recycle a hydrogen-containing effluent from a catalyst reduction zone to a treatment zone for further processing. In particular, Greenwood (FIG. 1; column 6, line 41 to column 8, line 8) teaches an apparatus comprising a zone for reducing a regenerated catalyst (i.e., lockhopper zone 28) wherein the zone 28 is provided with at least one line for introducing hydrogen-containing gas (i.e., via line 19) and at least one line for withdrawing a gas stream (i.e., via line 31), wherein the line for withdrawing a gas stream 31 is connected (i.e., via lines 34, 15, 17 and 2) to at least one line for supplying feed (i.e., via line 1) to a treatment zone (i.e., moving bed reaction zone 4).

Regarding claim 5, Deering et al. (FIG. 1) discloses at least one line (i.e., via line 80, line 86 and compressor 88 to line 100, column 6, lines 1-16) for recycling a portion of gaseous hydrogen-containing effluent obtained from the separation zone 70 to the reduction zone 96.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung August 11, 2005

FIEN TRAN
PRIMARY EXAMINER